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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,445	12/28/2001	Do Lee-Mi	51876P287	9314
8791	7590	03/24/2004	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD, SEVENTH FLOOR LOS ANGELES, CA 90025			YAMNITZKY, MARIE ROSE	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/033,445

Applicant(s)

DO ET AL.

Examiner

Marie R. Yamnitzky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-5, 12 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 3, 5, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. This Office action is in response to applicant's amendment received December 29, 2003, which amends the abstract, the specification and claims 3-5, cancels claims 1, 2 and 6-11, and adds claims 12 and 13.

Claims 3-5, 12 and 13 are pending.

2. This Office action is also in response to the certified translation of applicant's foreign priority application, the translation having been received December 29, 2003. While the translation has been received, a certified copy of the priority document has not been received.

3. The objection to the disclosure as set forth in the Office action mailed June 24, 2003 is overcome by applicant's amendment. (Remaining spelling and grammatical errors in the specification and abstract will be corrected by informal examiner's amendment at such time as the application is otherwise in condition for allowance.)

All rejections of claims 1, 2 and 6-11 are rendered moot by the cancellation of these claims.

The rejection of claims 3-5 under 35 U.S.C. 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs, as set forth in the Office action mailed June 24, 2003, is overcome by applicant's amendment. New issues raised by applicants' amendment are set forth in this Office action.

4. The amendment filed December 29, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall

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introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the text of the replacement paragraph for the paragraph beginning at page 9, line 7, of the specification.

Applicant is required to cancel the new matter in the reply to this Office Action. In the alternative, applicant is required to explain how the description of forming a 5- or 6-membered ring type amine is derived from the original disclosure.

5. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Support for the language regarding formation of a 5- or 6-membered ring type amine is not clear.

6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Formula 10 does not provide antecedent basis for recitation of " $Y_2(CH_2)_m$  and  $Y_4(CH_2)_o$ ". In this phrase, the subscripts "m" and "o" should be --n-- and --p--, respectively.

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7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 3, 5 and 13 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2001-19946.

The prior art discloses compounds of present formulae 8, 10 and 12 as required by claims 3, 5 and 13, respectively. See formulae (13), (20) and (24) in the prior art. These compounds are disclosed for use as a luminescent material in an organic EL device.

9. The certified translation of applicant's foreign priority document, received December 29, 2003, discloses the subject matter of present claims 3, 5 and 13. The rejection of claims 3, 5 and 13 as anticipated by JP 2001-19946 will be dropped upon receipt of the certified copy of the priority document.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang et al. (4,769,292).

The compounds represented by present formulae 11 and 12 are 4-dicyanomethylene-4H-pyrans substituted at the 2-position and 6-position of the pyran ring by a 2-(4-aminostyryl) group. The amino group of each 2-(4-aminostyryl) group in the compound of formula 11 is a dibutylamino group. The amino group of each 2-(4-aminostyryl) group in the compound of formula 12 is a diphenylamino group.

Tang et al. disclose an organic electroluminescent device comprising an anode and a cathode, and between the anode and cathode, an organic luminescent medium layer (luminescent zone). Tang et al. disclose 4-dicyanomethylene-4H-pyrans as fluorescent dyes for use in the luminescent zone of an organic electroluminescent device. The pyran ring may be substituted at the 2-position and 6-position by a 2-(4-aminostyryl) group. For example, see the abstract, column 4, lines 41-53, c. 12, l. 49-c. 13, l. 21 and claim 7. Tang et al. teach that when both positions are substituted by a 2-(4-aminostyryl) group, "the groups can be the same or different, but symmetrical compounds are more conveniently synthesized" (c. 13, l. 18-21).

Tang et al. do not explicitly disclose the compounds of present formulae 11 and 12, but such compounds are clearly within the scope of Tang's pyran compounds. Tang et al. do not explicitly limit the amino group of the 2-(4-aminostyryl) group. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make pyran dyes within Tang's guidelines other than those specifically disclosed in order to provide other fluorescent dyes suitable for use in Tang's device.

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Tang's FD-27 is an unsymmetrical compound having one dimethylaminostyryl group. Based on Tang's teaching regarding symmetrical compounds, one of ordinary skill in the art would have reasonably expected that a symmetrical compound having two dimethylaminostyryl groups or similar dialkylaminostyryl groups would be suitable for Tang's purposes. A dibutylaminostyryl group is a homolog of a dimethylaminostyryl group. One of ordinary skill in the art at the time of the invention would have reasonably expected that substitution of a pyran ring with a dimethylaminostyryl group or a dibutylaminostyryl group at the 2-position and the 6-position would provide compounds having similar properties that are suitable for the same use.

Tang et al. do not explicitly disclose a pyran compound having a 2-(4-aminostyryl) group wherein the amino group is a diarylamino group such as a diphenylamino group. However, based on Tang's disclosure as a whole and knowledge in the art, one of ordinary skill would have reasonably expected that a diarylamino group such as a diphenylamino group could be included in the 2-(4-aminostyryl) group without adversely affecting the luminescent characteristics of the device. For example, Tang et al. disclose other fluorescent dyes having amino groups wherein the amino groups are diarylamino groups (e.g. see c. 16, l. 59-c. 17, l. 2 and c. 17, l. 16-29).

12. Claim 4 is allowed.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY  
March 19, 2004



**MARIE YAMNITZKY  
PRIMARY EXAMINER**

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